# THE IMPACT OF COVID-19 ON FINANCING DECISIONS OF SMEs IN VIETNAM

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## ABSTRACT

*The coronavirus disease (COVID-19) pandemic has had a massive impact on the economy around the world. To shed light on how COVID-19 is affecting the bank loan financing decisions of small and medium-sized enterprises (SMEs) in Vietnam, we conducted a survey with the participation of representatives come from 92 SMEs in Ho Chi Minh City, Vietnam in the period from March to April 2020. Employing logistic regression, we find that the risk perception of COVID-19 is a significant factor that helps predict SMEs' bank loan financing decisions. This study not only contributes to management literature regarding firm's financing decisions but also assists policymakers in introducing policies related to SMEs.*

**Keywords:** COVID-19, risk perception, SMEs financing, bank loan, Vietnam

## INTRODUCTION

The coronavirus disease (COVID-19) outbreak started in December 2019 in Wuhan, China. It continues to spread across the world. According to Baldwin and Tomiura (2020), the pandemic's rapid spread has created a shock for international trade, both supply and demand. The slowdown in China's economic growth and production disruptions have slowed global economic activity even further. Global financial markets have also been responsive to the changes, and global stock indices

have plunged. According to Maliszewska et al. (2020), global gross domestic product (GDP) is expected to decline by 2.1%, while developing countries' GDP is expected to decline by 2.5% and high-income countries by 1.9%. The most significant GDP losses under the global pandemic scenario are expected in East Asia and Pacific (EAP) countries due to their relatively deep integration through trade and direct impact on tourism, for example, Cambodia (3.2%), Singapore (2.1%), Hong Kong SAR, China (2.3%), Thailand (3%), Vietnam (2.7%), and Malaysia (2.1%). The COVID-19 pandemic affects all sectors (international trade, tourism, industry, etc.) making every business negatively affected, but SMEs are the most vulnerable (OECD, 2020).

The SMEs are essential to almost all economies globally with their domination in number (Rwigema & Karungu, 1999) and their substantial contribution to those in developed countries (Cravo, 2010) as well as developing countries (Berry, 2007). In developing nations where SMEs dominate economically active enterprises, their prosperity is considered far more critical than in developed countries (Rwigema & Karungu, 1999). Ayandibu and Houghton (2017) suggest that SMEs contribute to the following: SMEs are the engine of growth, essential for a competitive and efficient market, and critical for poverty reduction. SMEs play significant roles in most economies as they drive growth, provide employment, and open new markets.

However, even though SMEs are significant contributors to economic growth, they are often the most vulnerable when there are acute public crises. Runyan (2006) concludes that small firms are most severely impacted in crises because of their lower levels of preparedness, higher vulnerability, higher dependence on government and local agencies, and more substantial psychological and financial impact on the owners-managers. Due to the SMEs' importance and the potential repercussions of COVID-19, this problem is even more prevalent. Therefore, supporting SMEs during the COVID-19 pandemic becomes the paramount target of international and national development agencies, especially in developing countries.

Extant research has investigated how firms behave in financial crises and economic downturns (Casey & O'Toole, 2014; Cowling et al., 2012; Cowling et al., 2016), little is known about their behaviours in health crises except for a meaningful study conducted by Watkins et al. (2007). However, most of the research about the field is mainly conducted abroad, and there are few and rather scarce experimental studies in Vietnam. Some of these studies just focus on policies (Le et al., 2020) or listed firms on the stock market (Truong et al., 2020) and have not yet on SMEs financing, even though the financial resource is crucial for SMEs to grow (Berger et al., 2011; Cole & Sokolyk, 2018). Therefore, we contemplate exploring how

SMEs respond to the detrimental effects of the dreadful COVID-19 epidemic, which is forecasted to plummet the global economy to the most shocking depression since World War II (World Bank, 2020), in financing decisions is imperative.

As COVID-19 has prevailed across the world, inevitably, Vietnam is also considerably affected by the pandemic. Vietnam's growth is predicted to decrease by 0.4% (Nguyen, 2020); World Bank (2020) forecasts that Vietnam's economic growth rate in 2020 will be about 1.5% to 4.9% depending on the scenario. Hence, the current business conditions for SMEs are very challenging. Therefore, to survive through and continuously develop after the crisis, it is decisive that SMEs can access the support of financial sources. However, it is indicated that the management of significant financial issues in SMEs depends mostly on the company's top managers (Ang et al., 2010). This proposition is more relevant in the context of the small business sector in Vietnam (Sharma & Tarp, 2018). As a result, we propose that examining the perceived risk derived from the COVID-19 and how Vietnamese SMEs respond to the perception in financing decisions is necessary to address SMEs' needs and assist them in overcoming this severely adverse situation.

This paper aims to reach the following purposes: (1) understanding the impacts of risk perception of COVID-19 on SMEs' bank loan financing decisions, and (2) suggesting meaningful implications that can help firms in confronting the severe pandemic. This study collected data from SMEs in Ho Chi Minh City, Vietnam by surveys via email and using logit regression to study the SMEs' owner perceptions influencing their bank loan decisions based on the protection motivation model. The research is expected to contribute to both theoretical and practical aspects of management in the financial field, which delivers several suggestions that enable the national economy to overcome the pandemic's repercussions and be invigorated.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Economic Situation and SMEs' Decision on Sources of Finance

SMEs financing is a traditional topic that has been discussed much (Jude & Adamou, 2018). According to the pecking order theory of capital structure (Myers, 1984), due to adverse selection, firms prefer internal to external finance. However, of these two sources, external finance is crucial for SMEs to grow (Berger et al., 2011; Cole & Sokolyk, 2018). Bank loans remain the main supplier of SMEs' external source of finance (Cosh & Hughes, 2003). Nevertheless, the economic

situation does have an impact on the decision of whether to borrow from the banks of SMEs. Cowling et al. (2012), Cowling et al. (2016), and Zubair et al. (2020) argue that in the normal economic situation, debt maturity policies of firms are persistent, by contrast, the financial crisis does reduce the persistence of debt policy. During the downturn period, firms tend to adjust their financing policy to adapt to the environment. By examining the effects of the financial crisis on private firms in the Netherlands, Zubair et al. (2020) conclude that during the crisis period, firms become more dependent on external finance and bank loans remain critical in determining the investments of private SMEs. However, smaller and younger firms are more likely to be discouraged from applying for external funding during the recession period as they fear rejection (Cowling et al., 2016; DeYoung et al., 2015). In other words, the financing decision of firms, especially the bank lending decision of SMEs might be affected considerably by exogenous shocks such as financial crisis or economic downturn.

**Risk Perception and SMEs' Decision on Sources of Finance**

According to the expected utility theories, risk is the product of people's assessment of the severity and probability of negative outcomes (Mongin, 1997). Risk perception can be defined as an individual's perceived susceptibility to a threat (Hochbaum, 1958). Gellman and Turner (2013) state that risk perceptions are beliefs about potential harm or the possibility of a loss. It is a subjective judgement that people make about the characteristics and severity of a risk. In terms of health, risk perceptions are defined by the perceived seriousness of a health threat and perceived personal vulnerability (De Zwart et al., 2007).

Risk perception is central to many of the theories used to explain health behaviours including the health belief model (Rosenstock, 1974) and the protection motivation theory (Rogers, 1975). According to Rosenstock (1974), the health belief model focuses on individual beliefs about health conditions. These beliefs can help predict individual health-related behaviours. The model defines the key factors that influence health behaviours as an individual's perceived threat to sickness or disease (perceived susceptibility), belief of consequence (perceived severity), potential positive benefits of action (perceived benefits), perceived barriers to action (cues to action), and confidence in the ability to succeed (self-efficacy). This theory is employed extensively related to the health sector such as by Janz and Becker (1984), Fishbein and Yzer (2003), and DiMatteo et al. (2007). In the protection motivation framework, Rogers (1975) proposes that people protect themselves from a health threat based on four factors: (1) the perceived severity or seriousness of the threat, (2) the likelihood of the threat occurring, (3) the perceived effectiveness of actions to avoid the threat, and (4) the individual's perceived self-

capacity to implement those actions. This protection motivation theory states that higher risk perceptions will only predict protective behaviour when people believe that effective protective actions are available (response efficacy) and that they can engage in such protective actions (self-efficacy). Protection motivation theory is used in many research such as Brewer et al. (2007), Watkins et al. (2007), Bish and Michie (2010), and Rolison and Hanoch (2015). A primary difference between the health belief model and protection motivation theory is that the health belief model is organised as a catalogue of variables contributing to behaviour, while protection motivation theory is organised along two processes: cognitive processes that people use in evaluating threats (the threat-appraisal process) and coping-appraisal process that people use in selecting among coping alternatives (Floyd et al., 2000).

Ang et al. (2010) state that the decision on sources for finance of SMEs might be affected by the owner because SMEs are often family or sole proprietorship business entities. There is no distinction exists between ownership and control in small firms resulting in the owner making most of the decisions (Baker et al., 2020; Jude & Adamou, 2018). Thus, we believe owners' risk perception about the COVID-19 pandemic will affect SMEs' post-COVID-19 bank lending decisions.

In our study, we apply the protection motivation theory of Rogers (1975) in order to build the questionnaire and process data. Employing protection motivation theory to measure risk perception, research have found the strong relationships between risk perceptions and behaviours. Brewer et al. (2007) demonstrate that consistent relationships exist between risk perceptions and behaviour, therefore, risk perceptions are predictors of vaccination behaviour. Watkins et al. (2007) find that beliefs about the risk, severity, and the ability to respond effectively to the threat of pandemic influenza are important predictors of preparedness for SMEs. The authors conclude that risk perception regarding the business aspect is a significant factor in investigating businesses' reactions to an influenza pandemic. In other words, risk perception may have influence on the behaviour of firms on financing decision (Watkins et al., 2007). Similarly, Bish and Michie (2010) assert that greater levels of perceived susceptibility to and perceived severity of the diseases and greater belief in the effectiveness of recommended behaviours to protect against the disease are important predictors of behaviour. Rolison and Hanoch (2015) find that more knowledgeable individuals perceive less risk of contracting Ebola for themselves and for others. They are less worried about contracting the virus, and perceived greater control over preventive actions against contracting Ebola in the event of an outbreak in the United States.

As mentioned above, in protection motivation theory of Rogers (1975), risk perception is measured using four factors including perceived severity, likelihood

of the threat occurring, perceived efficacy, and perceived susceptibility. Since COVID-19 has already occurred, in our research, we employ only three variables from protection motivation theory, which are perceived severity, perceived efficacy, and perceived susceptibility. According to coping appraisal in the protection motivation theory (Rogers, 1975), when perceived severity is high, people tend to protect themselves from perceived threats by limiting their social and business activities. By contrast, when perceived efficacy is high, which means protective actions against the diseases are believed to be effective, people will be more confident to make decisions for the future. According to Watkins et al. (2007), managers' perception of risk to business during the influenza pandemic has impact on firm behaviours. SMEs tend to be less engaged in business activities if they consider the macroeconomic environment riskier. Therefore, we also include risk to business variable in our study and thus the following hypotheses are formulated:

H1:   Perceived severity of firm owners decreases SMEs' intention to apply for bank loans after COVID-19 pandemic.

H2:   Perceived susceptibility of firm owners decreases SMEs' intention to apply for bank loans after COVID-19 pandemic.

H3:   Perceived efficacy of firm owners increases SMEs' intention to apply for bank loans after COVID-19 pandemic.

H4:   Perceived risk to business of firm owners decreases SMEs' intention to apply for bank loans after COVID-19 pandemic.


## METHODS

### Study Design and Sample

A survey was conducted with the participation of representatives came from 92 active small or medium companies in Ho Chi Minh City, Vietnam, from March to April 2020. Appropriate companies were described as businesses whose capital in the year 2019 was less than 100 billion VND (approximately USD4.3 million[1]).

A list of businesses was retrieved from the Vietnam Yellow Pages database. The participant list was continuously monitored to ensure to have as many SMEs operated in Ho Chi Minh City as possible. The researchers randomly administered the questionnaire to 500 companies via email. It was lucidly interpreted that all provided information would be kept confidential and only used for the research

purpose. There were 103 business owners or managers who returned the answers (the response rate was 20.6%), in which 11 respondents came from large companies (with the capital in the year 2019 larger than 100 billion VND), which accounted for 10.7%. Therefore, they were dismissed to meet the requirement of SMEs, leaving the sample with N = 92 observations. There were 57 companies having a loan (approximately 62%) at the time of the survey.

## Measures

### Post-COVID-19 bank lending decisions

The dependent variable was a binary indicator that represented the businesses' decision whether to make a loan after the pandemic COVID-19 or not. Participants were required to respond "Yes" or "No" to the question: "Would you make any loan to support your business within one year from now on?"

### Firm owner's COVID-19 pandemic perception

Participants' COVID-19 pandemic perception was evaluated according to the protection motivation framework (Brewer et al., 2007; Rogers, 1975) with three separate questions, each represented for a variable: the severity of the influenza pandemic, the likelihood of susceptibility of the disease, and the response efficacy to the disease (Watkins et al., 2007). The pandemic severity was measured by asking respondents to give their belief on the harshness of COVID-19 on a 5-point Likert scale, ranging from 1= extremely low to 5 = extremely high. Their perceived susceptible likelihood was appraised as the possibility they would contain the virus in the future, ranging from 1 = very unlikely to 5 = very likely. The remaining variable, the response efficacy, was operationalised as how they believe the Vietnam government would effectively check the virus's detrimental consequences regarding both society's health and economic aspects. The participants are required to rate their thinking on a 5-point Likert scale, ranging from 1 = very low to 5 = very high.

It was illustrated that risk perception regarding the business aspect plays a significant role in investigating businesses' reactions to an influenza pandemic (Watkins et al., 2007). Therefore, the risk to business perception was included in the study, which was assessed by asking the respondents to give their appraisals regarding the ramification the pandemic would place on their business facets (revenue, expenses, profit, liquidity, working capital, cash flows, supply chain, human resource management), ranging from 1 = extremely low to 5 = extremely high. The variable was then standardised to ensure the scale consistency.

## Control variables

We employed an assortment of control variables to elucidate possible biases in the regression model. We added a mixture of variables that reflect fundamental attributes of surveyed businesses, consisting of ownership types (private company, the joint-stock company without capital of state, private limited company, state-owned company, joint-stock company having capital of state, and foreign investment company), industry type (agriculture, forestry, fisheries, industry, and construction, or trade and services), company age (less than 3 years, 3 to less than 6 years, 6 to less than 11 years, 11 to less than 15 years), company size (number of employees), company's capital at the end of the financial year 2019, education level of the owner (high school, college/university, or post-graduate). The Decree No. 39/2018/ND-CP on guidelines for law on support for SMEs was employed to frame the mentioned dichotomous variables classification.

The literature has manifested that these firm characteristics have a significant correlation with a firm's financing decision (Cowling et al., 2016; Nguyen et al., 2020). For example, we use the education variable according to the research of Simon (1997), Kolstad and Wiig (2015), Cowling et al. (2016), and Nguyen et al. (2020). The firm age variable was utilised as suggested by Beck et al. (2006), Ferrando and Mulier (2015), Cowling et al. (2016), and Nguyen et al. (2020).

## Analysis

The correlations between dichotomous variables in the research are examined by using the chi-square test of independence. The Phi and Point-Biserial indicators extrapolated the magnitude of the associations. The index derives from the chi-square test and pinpoints the extent to which the correlation between two categorical variables can interpret the total variance.

Logit models were utilised to discover significant COVID-19-related perception predictors that influence whether or not to make a loan post-COVID-19. Despite the $p$-value dominating the applied literature in verifying the appropriateness of the hypothesised model, its application has been increasingly contended for possible misinterpretation and insufficiency in delivering proper evidence that the model is supported by the empirical data (Held & Ott, 2018). As a result, researchers suggest that calibrating $p$-values into a minimum Bayes factor would be a more reliable approach, which provides direct evidence against the null hypothesis (Goodman,

1999; Held & Ott, 2018). Therefore in this study, we will present both *p*-values and Bayes factors to determine the significance of the model and extrapolated parameters. According to Jeffreys (1961), a Bayes factor ranging from 1 to 1/3 gives a bare mentioned evidence against H0, 1/3 to 1/10 is substantial evidence, 1/10 to 1/30 gives strong evidence, 1/30 to 1/100 is very strong, and 1/100 to 1/300 is decisive.

All variables were dichotomised for regression by median splitting in consequence of skewed distribution and the diminutive number of observations, except for the risk to business variable, which was standardised to ensure the scale consistency. The model was assembled manually to endorse the expedition of possible substitute models. The model with marginal effects was incipiently established. An effect modification would be brought into consideration, depending on the association between independent variables is significant or not. The interaction terms would be complemented depending on the telling adjustment of the model's log-likelihood. Adjusted odds ratio (AOR), Wald's test indicator, and a 95% confidence interval encapsulate the extrapolated coefficients and relationship between variables in the model. The likelihood ratio chi-square test (LR Chi2) and Hosmer-Lemeshow test is used to test the model's goodness-of-fit. The authors used R 3.6.1 to perform all analyses.

## RESULTS

### Descriptive Statistics

In the 500 emails sent to the owners or managers of businesses, 103 responses were returned, providing the response rate equivalent to 20.6%. The unprecedented influenza pandemic situation and strict quarantine requirements in Vietnam were the major reasons that contributed to the high non-response rate. The descriptive statistics regarding essential variables according to the current loan situation, including firm characteristics, perception about the COVID-19 pandemic, and the outcome variable, are displayed in Table 1.

Table 1

*Firm characteristics, influenza pandemic perceptions, and post-COVID-19 loan-making decision according to the current credit situation of firms*

| Firm characteristics (N = 92) | Not having loan (%) | Having loan (%) | p† | Total (%) |
|---|---|---|---|---|
| Ownership | | | 0.497 | |
| Private company | 25.7 | 21.1 | | 22.8 |
| Joint stock company without capital of state | 14.3 | 14.0 | | 14.1 |
| Private limited company | 42.9 | 56.1 | | 51.1 |
| State-owned company | 2.9 | 0.0 | | 1.1 |
| Joint stock company having capital of state | 0.0 | 1.8 | | 1.1 |
| Foreign investment company | 14.3 | 7.0 | | 9.8 |
| Company age | | | 0.113 | |
| 0 to less than 3 years | 31.4 | 14.0 | | 20.7 |
| 3 to less than 6 years | 37.1 | 47.4 | | 43.5 |
| 6 to less than 11 years | 8.6 | 24.6 | | 18.5 |
| 11 to less than 15 years | 14.3 | 5.3 | | 8.7 |
| More than 15 years | 5.7 | 7.0 | | 6.5 |
| Don't know | 2.9 | 1.8 | | 2.2 |
| Industry type | | | 0.96 | |
| Agriculture, forestry, fisheries, industry and construction | 17.1 | 17.5 | | 17.4 |
| Trade and services | 82.9 | 82.5 | | 82.6 |
| Size | | | 0.721 | |
| 1–10 employees | 37.1 | 33.3 | | 34.8 |
| 11–50 employees | 37.1 | 50.9 | | 45.7 |
| 51–100 employees | 11.4 | 7.0 | | 8.7 |
| 101–200 employees | 5.7 | 3.5 | | 4.3 |
| > 200 employees | 8.6 | 5.3 | | 6.5 |

Table 1: (*continued*)

| Firm characteristics (N = 92) | Not having loan (%) | Having loan (%) | p† | Total (%) |
|---|---|---|---|---|
| Capital 2019 | | | 0.658 | |
| < 3 billion VND | 57.1 | 50.9 | | 53.3 |
| 3 to less than 20 billion VND | 28.6 | 40.4 | | 35.9 |
| 20 to less than 50 billion VND | 8.6 | 5.3 | | 6.5 |
| 20 to less than 100 billion VND | 5.7 | 3.5 | | 4.3 |
| Education | | | 0.726 | |
| High school | 8.6 | 5.3 | | 6.5 |
| College/university | 54.3 | 61.4 | | 58.7 |
| Post-graduate | 37.1 | 33.3 | | 34.8 |
| Severity of pandemic influenza | | | 0.715 | |
| Extremely low | 0.0 | 1.8 | | 1.1 |
| Low | 0.0 | 0.0 | | 0.0 |
| Neutral | 14.3 | 8.8 | | 10.9 |
| High | 37.1 | 42.1 | | 40.2 |
| Extremely high | 48.6 | 47.4 | | 47.8 |
| Perceived susceptibility | | | 0.841 | |
| Very unlikely | 22.9 | 19.3 | | 20.7 |
| Unlikely | 22.9 | 21.1 | | 21.7 |
| Neutral | 42.9 | 38.6 | | 40.2 |
| Likely | 8.6 | 15.8 | | 13.0 |
| Very likely | 2.9 | 5.3 | | 4.3 |
| Response efficacy | | | 0.831 | |
| Very low | 0.0 | 1.8 | | 1.1 |
| Low | 2.9 | 1.8 | | 2.2 |
| Neutral | 22.9 | 28.1 | | 26.1 |
| High | 51.4 | 42.1 | | 45.7 |
| Very high | 22.9 | 26.3 | | 25.0 |
| Post-COVID-19 bank lending decisions | | | 0.184 | |
| Yes | 51.4 | 35.1 | | 41.3 |
| No | 48.6 | 64.9 | | 58.7 |

*Note:* † p = *p*-value for chi-square test of independent

The majority of participating businesses are non-state-owned companies, which account for 98.8% of the sample. There are only two companies that are state-owned businesses or have the capital of the state (2.2%). Most businesses operate in the service sector (82.6%) and most of the owners and managers achieve graduate or higher levels of education, taking a proportion of 93.5%.

Approximately 90% of respondents acknowledge that the severity of the COVID-19 pandemic is high or extremely high. Interestingly, only 17.3% of business managers believe that there is a possibility of being infected in the near future. In general, respondents have a positive perspective on the government's efficacy in confronting the detrimental effects of the pandemic on the society's health and economy. Almost 80% of interviewees believe that the government have a high or very high capability to deal with the virus. On the other hand, participants reckon that the COVID-19 pandemic would impose adverse repercussions on their operation, with 56 businesses, making up a proportion of 60% of the sample. Subsequently, about 60% of the businessmen decide not to make any loan within one year since the survey, only the remaining 38 firms (40%) would like to create a loan (Table 1).

Firms' fundamental attributes appear to have no difference between companies with and without loans, including ownership, firm age, size, industry type, capital, and manager's education. The perception regarding COVID-19 severity, susceptibility, response efficacy, and impact on business do not differ according to the current credit statement. The post-COVID-19 loan decision seems to have no association with the loan situation of companies.

Table 2 depicts bivariate correlations between exploratory perception regarding COVID-19 variables and the firm's decision about whether or not to make a loan within one year. It is indicated that two belief variables significantly associate with the decision to make a loan, particularly the perceived susceptibility (Phi = –0.229, $p$-value = 0.028) and the risk to business (Point-Biserial = 0.282, $p$-value = 0.006). There is a telling association between the severity's perception of the pandemic with response capability detected, which elucidates for 32.9% of the overall variance in responses. However, there is no correlation found between the beliefs regarding the pandemic severity (Phi = 0.031, $p$-value = 0.766) and efficacy of government responsiveness (Phi = 0.129, $p$-value = 0.215) with the loan decision.

Table 2

*Bivariate correlations between perception variables and post-COVID-19 loan-making decision*

| Variable (abbreviated name) | Phi † (*p*) | | | |
|---|---|---|---|---|
| | Severity | Efficacy | Susceptibility | Business |
| Severity of pandemic influenza (Severity) | – | – | – | – |
| High/Extremely high severe | | | | |
| Perceived efficacy (Efficacy) | 0.158 | – | – | – |
| Neutral/High/Very High | (0.129) | | | |
| Response susceptibility (Susceptibility) | 0.329*** | 0.089 | – | – |
| Likely/Very likely | (0.002) | (0.394) | | |
| Risk to business (Business) ‡ | 0.065 | 0.137 | 0.267** | – |
| | (0.193) | (0.010) | (0.193) | |
| Decision to make a loan within the next 1 year after COVID (post-COVID-19 loan) | 0.031 | 0.129 | –0.229** | –0.282*** |
| Yes | (0.766) | (0.215) | (0.028) | (0.006) |

*Notes:* † phi indicates the proportion of the total variance explained; ‡ Point-Biserial coefficients were used to represent the correlation between risk to business and other binary variables; ***, **, and * denote significance at 1%, 5%, and 10%, respectively

## The Effect of COVID-19 Perception on the Decision to Make a Loan

In order to determine the significant perception predictors of deciding whether or not to make a loan post-COVID-19, we use the logit model. In furtherance of a thoroughgoing understanding of the decision, we decide to simultaneously run the regressions on sub-sample, which includes only firms that were having a financial loan at the time of the study. Interaction terms are examined in all models. As a result, we do not identify any considerable modification effect. The regression results with significant beliefs predictive variables of the post-COVID-19 loan decision hinge upon the involvement of firm characteristics as control variables are presented in Table 3 (full sample), and Table 4 (sub-sample of firms with a current loan). Generally, the results derive from logit regression models are approximately similar.

A significant positive parallel is discovered between the decision to make a loan during post-COVID-19 period and perceived response efficacy ($\beta = 0.927$; SE = 0.526; *p*-value < 0.1; Bayes factor, BF = 0.413), such that participants with neutral, high, or very high response efficacy beliefs being roughly two and a half times more probably to have reported deciding to make a loan compared to those with

very low or low belief (odd ratio, OR = 2.53; 90% CI = [0.92–7.36]). Furthermore, perceived susceptibility has a negative influence on the loan decision (β = –1.209; SE = 0.689; $p$-value < 0.1; BF = 0.416), such that respondents who believe that they are likely or very likely to contract the virus soon would be 70% less likely to lend money when the economy is re-opened (OR = 0.30; 90% CI = [0.07–1.07]). Furthermore, interviewees who predict that the influenza pandemic would shake their businesses with detrimental impacts would curb their intention to make a loan (β = –0.869; SE = 0.316; $p$-value < 0.05; BF = 0.043).

The logit regression model has the model $R^2$ statistics approximately equal to 0.283, which means that the model's factors can explain 28.3% of the total variance of the dependent variable. The $p$-value of the log-likelihood ratio chi-square tests for the model is smaller than 0.05, suggests that the models are acceptable for verifying significant belief predictors of making a loan decision. Furthermore, Hosmer-Lemeshow tests with $p$-values equivalent to 0.3476 (larger than 0.1) for the logit model, indicating that there is no evidence of poor fit (Hosmer & Lemesbow, 1980). Therefore, we can conclude that the model is adequately fit.

Table 3

*Logit regression results for full sample*

| Dependent variable predictors (N = 92) | Logit regression | | | | |
| --- | --- | --- | --- | --- | --- |
| | β (S.E.) | OR (90% CI) | Wald statistic † | $p$-value | BF |
| Decision to make a loan within the next 1 year after COVID-19 (Yes) | $R^2$ = 0.283 | | | | |
| Perceived severity (Ref: Extremely low/low/neutral) | | | | | |
| High/extremely high | 1.002 (0.852) | 2.72 (0.53–16.25) | 1.176 | 0.239 | 0.918 |
| Perceived efficacy (Ref: Very low/low) | | | | | |
| Neutral/high/very high | 0.927* (0.526) | 2.53* (0.92–7.36) | 1.760 | 0.078 | 0.413 |
| Perceived susceptibility (Ref: Very unlikely/unlikely/neutral) | | | | | |
| Likely/very likely | –1.209* (0.689) | 0.30* (0.07–1.07) | –1.756 | 0.079 | 0.416 |
| Risk to business | –0.869*** (0.316) | 0.42*** (0.21–0.74) | –2.749 | 0.006 | 0.043 |

*(continued on next page)*

Table 3: (*continued*)

| Dependent variable predictors (N = 92) | Logit regression | | | | |
|---|---|---|---|---|---|
| | β (S.E.) | OR (90% CI) | Wald statistic † | *p*-value | BF |
| Education (Ref: High school) | | | | | |
| College, university or post-graduate | −1.443 (1.403) | 0.24 (0.01–2.61) | −1.028 | 0.304 | 0.995 |
| Age (Ref: < 6 years) | | | | | |
| 6 years and above | 0.155 (0.593) | 1.17 (0.36–3.81) | 0.262 | 0.793 | 1.000 |
| Ownership (Ref: State-owned) | | | | | |
| Non-state-owned | 1.730 (1.883) | 5.64 (0.13–320.45) | 0.919 | 0.358 | 1.000 |
| Industry (Ref: Agriculture, forestry, fisheries, industry, and construction) | | | | | |
| Trade and services | −0.102 (0.737) | 0.90 (0.21–3.91) | −0.138 | 0.890 | 1.000 |
| Size (Ref: < 50 employees) | | | | | |
| 50 employees and above | 0.982 (0.727) | 2.67 (0.67–12.00) | 1.351 | 0.177 | 0.768 |
| Capital (Ref: < 20 billion VND) | | | | | |
| 20 billion VND and above | 0.249 (0.944) | 1.28 (0.21–9.08) | 0.264 | 0.792 | 1.000 |
| LR Chi$^2$ (10) (*p*-value) | 21.69** (0.0168) | | | | |
| Hosmer-Lemeshow test (*p*-value) | 8.9371 (0.3476) | | | | |

*Notes:* OR = odd ratio; BF = Bayes factor; † the Wald statistic signify the correlation significance between the independent and dependent variables; ***, **, and * denote significance at 1%, 5%, and 10%, respectively

Table 4

*Logit regression results for sub-sample including firms that were currently having financial loans*

| Dependent variable predictors (N = 92) | Logit regression | | | | |
|---|---|---|---|---|---|
| | β (S.E.) | OR (90% CI) | Wald statistic † | *p*-value | BF |
| Decision to make a loan within the next 1 year after COVID-19 (Yes) | R2 = 0.283 | | | | |
| Perceived severity (Ref: Extremely low/low/neutral) | | | | | |
| High/extremely high | 0.893 (1.471) | 2.44 (0.14 –43.64) | 0.607 | 0.544 | 1.000 |

*(continued on next page)*

Table 4: (*continued*)

| Dependent variable predictors (N = 92) | Logit regression | | | | |
|---|---|---|---|---|---|
| | β (S.E.) | OR (90% CI) | Wald statistic † | *p*-value | BF |
| Perceived efficacy (Ref: Very low/low) | | | | | |
| Neutral/high/very high | 1.463* (0.761) | 4.32* (0.97 –19.20) | 1.921 | 0.055 | 0.301 |
| Perceived susceptibility (Ref: Very unlikely/unlikely/neutral) | | | | | |
| Likely/very likely | –1.375 (1.218) | 0.252 (0.02 –2.75) | –1.128 | 0.259 | 0.944 |
| Risk to business | –0.993** (0.429) | 0.37** (0.16 –0.86) | –2.312 | 0.021 | 0.130 |
| Education (Ref: High school) | | | | | |
| College, university or post-graduate | –6.355 (35.428) | 0.0000007 (0.000 –99999) | –0.18 | 0.858 | 1.000 |
| Age (Ref: < 6 years) | | | | | |
| 6 years and above | –0.702 (0.951) | 0.495 (0.08 –3.19) | –0.739 | 0.460 | 1.000 |
| Ownership (Ref: State-owned) | | | | | |
| Non-state-owned | 8.193 (66.596) | 34693936 (0 –99999999) | 0.12 | 0.902 | 1.000 |
| Industry (Ref: Agriculture, forestry, fisheries, industry, and construction) | | | | | |
| Trade and services | –0.869 (1.125) | 0.42 (0.05 –3.81) | –0.772 | 0.440 | 1.000 |
| Size (Ref: < 50 employees) | | | | | |
| 50 employees and above | 1.277 (1.265) | 3.59 (0.30 –42.81) | 1.010 | 0.313 | 0.997 |
| Capital (Ref: < 20 billion VND) | | | | | |
| 20 billion VND and above | –0.319 (1.425) | 0.73 (0.04 –11.87) | –0.224 | 0.823 | 1.000 |
| LR Chi² (10) (*p*-value) | 19.38** (0.0356) | | | | |
| Hosmer-Lemeshow test (*p*-value) | 11.938 (0.154) | | | | |

*Notes:* OR = odd ratio; BF = Bayes factor; † the Wald statistic signify the correlation significance between the independent and dependent variables; ***, **, and * denote significance at 1%, 5%, and 10%, respectively

The logit regression for the subset of businesses that were having a loan at the time of the study delivers relatively similar results, except that the owner's susceptibility perception is no longer included as a significant predictable factor. The loan decision is dependent on the owners' perception of government responsiveness and the risk that COVID-19 would impose on their businesses. Business owners who are neutral or had high/very high belief about the government's responsive capacity were approximately four times more prone to making a loan in the post-COVID-19 period, compared with those who had low or very low belief in the government's efficacy ($\beta$ = 1.463, SE = 0.761, OR = 4.32). Respondents who contemplate the influenza pandemic as a severe risk to their business would have meagre intention to make a loan than those with more positive sentiments ($\beta$ = –0.993, SE = 0.429).

**Robustness Validation**

After performing the logit regression, we scrutinise the deficiencies (if any) of the two models by employing the multicollinearity test. Multicollinearity is a phenomenon derives from the correlation between independent variables in a regression model, which may generate biased coefficient extrapolation. We calculate the variance inflation factor (VIF) indicator for each variable in the model to assure that the model is appropriate and minimise the multicollinearity threat. If any VIF is larger than 10, the variable appears to have multicollinearity (Kleinbaum et al., 2013). Table 5 illustrates that all the predictors have a VIF smaller than 10, thus, we can conclude that the model does not have high multicollinearity.

Table 5
*Variance inflation factors*

| Factor | Full sample | Firms with loan |
|---|---|---|
| Severity | 1.370 | 1.918 |
| Efficacy | 1.196 | 1.296 |
| Susceptibility | 1.275 | 1.810 |
| Risk to business | 1.234 | 1.325 |
| Education | 1.130 | 1.000 |
| Age | 1.365 | 1.950 |
| Ownership | 1.129 | 1.000 |
| Industry | 1.418 | 1.650 |
| Size | 1.388 | 2.147 |
| Capital | 1.474 | 1.822 |

**DISCUSSION**

Our research result shows that risk perception has a significant impact on SMEs' post-COVID-19 bank lending decisions. As can be seen from Table 3, the coefficient for perceived efficacy is positively and significantly correlated with the post-COVID-19 loan decision variable at 10% of significance in all regressions. This result indicates that if firm owners believe the Vietnamese government would effectively check the virus's detrimental consequences on both society's health and economic aspects, they will have the intention to apply for bank loans in the future. If COVID-19 is under control, SMEs tend to borrow more in order to finance their businesses since the recovery in the economy will offer more opportunities. This result is similar to the research result of DeYoung et al. (2015) when studying small business loan supply before and during the financial crisis. Research demonstrates that during a crisis, banks will restrict lending to SMEs for several reasons related to their ability to repay loans. Therefore, SMEs are also afraid that they will not be able to borrow because the bank will not approve their loan application.

We also find that the coefficient for risk to business variable is negative and significantly correlated with post-COVID-19 loan decision variable at 1% of significance in all regressions. This result suggests that firm owners who think COVID-19 leads to a risky business environment will be less likely to apply for a bank loan in the future. In other words, if firm owners believe that their enterprises are negatively affected by COVID-19 pandemic, they tend to scale down their businesses and thus do not have the demand for additional capital.

Regarding perceived susceptibility variable, for the full sample, this variable is a significant predictable factor of SMEs' bank lending decision after COVID-19. This finding indicates that firm owners who believe they would contain the virus in the future will be less likely to make bank loan decisions within one year from now on. This behaviour can be explained by their fear of not being able to maintain and manage their companies if they catch the disease. However, for the subset of businesses that were having a loan at the time of the study, the perceived susceptibility is not a significant factor.

The results of our research show that perceptions of SMEs in Vietnam during COVID-19 pandemic also follow the protection motivation theory (Watkins et al., 2007). Perceptions of SMEs owners are likely to have important consequences for decisions. The perceived risk of pandemic influenza to the business was the important factor in the decision to get a bank loan.

## IMPLICATIONS

According to Cowling et al. (2016), the firm's bank lending decision might be influenced by external incidents, especially shocks like the economic downturn or global health crises. Simultaneously, since SMEs are often family or sole proprietorship business entities, the financing decisions of SMEs often relies on the owners' characteristics and judgments (Ang et al., 2010; Nguyen et al., 2020). Accordingly, we reckoned that in confronting the COVID-19 pandemic, the crisis that is envisaged to plummet the global economy to the most dreadful depression since World War II (World Bank, 2020), firm owners' perception regarding the pandemic would prevail the SMEs' financial decision-making system. By surveying 92 SMEs' owners and managers in Ho Chi Minh City, we discover empirical evidence that supports our hypotheses. In line with previous studies that hinge upon the protection motivation model (Bish & Michie, 2010; Watkins et al., 2007), our findings corroborate that firm owners' risk perception is a pivotal motivation that drives responsive behaviour, particularly the financing decision to protect and recover their businesses. As the first study that combines the perception model to explore the firm's financing decision, our research contributes to the financial decision field with an unprecedented approach. It is worthy that in the future, researchers should consider SMEs owner's perception regarding several business issues in examining thoroughgoing SMEs' financing decision, in addition to personal characteristics stated in previous studies like age or educational level (Kolstad & Wiig, 2015; Nguyen et al., 2020; Simon, 1997).

Consistent with previous research, the risk to business derived from the COVID-19 pandemic is one of the most prominent predictors of SMEs' financial response (Watkins et al., 2007), such that the higher the risk perception of firm owners, the more likely that they will diminish their lending intention. However, from the banking industry's stance, SMEs have been prevalent and substantial target customers of commercial banks. Hence, if SMEs curb their lending plans, banks are unable to mobilise capital and miss the opportunity to generate income from interest charges. To compensate that, banks may alleviate businesses' risk perception and encourage them to lend money by delivering supporting schemes, such as rescheduling firms' current loans, moratorium, and lending more new debts with acceptable interest rates. Moreover, banks may deduce other reasons for firms' credit self-rationing from our study, enabling them to acknowledge further small and medium businesses' limitations in approaching loans. Accordingly, our research results may motivate them to re-design and adjust their product packages and provide their SME customers with more fruitful financial offers.

As suggested by our research results, firm owners' perceived susceptibility and government efficacy significantly influence how firms respond in financing policy. This conveys meaningful suggestions that assist the government in effectively containing COVID-19 repercussions to the national economy. In particular, according to Hofstede (2001) cultural dimensions, Vietnam is one of those high on collectivism, long-term orientation, and uncertainty avoidance. Therefore, if people perceive that they have a high potential to contract the virus, which may affect their families or relatives, and the government is low on the capacity to deal with the crisis, they tend to be more conservative on willingly running their business. In other words, SMEs' financing decision is vulnerable to the risks that the virus might affect its owner. Therefore, the government should concentrate on effectively containing the virus and put the mission at the top of priority to create a secure business environment that facilitates SMEs to operate actively, hence confidently make loans with banks to recover and continuously develop. Simultaneously, the central bank should consider creating favourable conditions that enable commercial banks to assist SMEs in lending. For instance, the central bank may loosen the monetary policy by lower the interest rate. Furthermore, the central bank may also suggest banks to loosen the debt collection time.

In recapitulation, the COVID-19 pandemic is an unprecedented crisis of the humankind. Therefore, for the national economy to overcome the constraints and revitalise, it is necessary to have all businesses, commercial banks, and the government coalesce into a unity. However, the mentioned responses are exclusive to Vietnam culture and strongly influenced by cultural characteristics. Hence, further research should extend the scope and investigate how SMEs companies in Western culture take the response to arrive at suitable recommendations.


## LIMITATIONS AND FUTURE RESEARCH

This study is not without limitations that should be acknowledged, but they also provide potential avenues for future research. First, the generalisation of this study may be limited because the sample was restricted to Vietnamese SMEs in Ho Chi Minh City. The dataset employed in this study is based on 92 SMEs in Ho Chi Minh City, Vietnam in the period from March to April 2020, which may suffer from some biases. The sample of the research is comparatively small and limited by geographic accessibility capacity which prevent the regression result, and thus not enough significant levels. Future research should thus re-test the validity of our findings using a larger dataset, extend the proposed theoretical framework and re-test it in other contexts.

Second, this is the first study on the relationship of the impact of risk perception of COVID-19 on SMEs' bank loan financing decisions, hence there are not enough theories and arguments to strongly support our arguments and hypotheses. Future studies can fill the research gaps and support our arguments. Furthermore, the scale of the perception factor is not perfect, future research should develop a better scale to measure that factor.

Third, this study is a cross-sectional study and was carried out during the first wave of the COVID-19 pandemic, so the results are limited in time. Future research should apply the longitudinal study to get more comprehensive and accurate results.

Fourth, the study does not mention about the difference between the effect of risk perception of COVID-19 on bank loan financing decisions and other financing sources (e.g., equity, commercial credit, etc.). Future research should extend to other financing sources.

Finally, due to the limited information available in the SMEs survey, we primarily surveyed the firm owners' perception of the COVID-19 pandemic in this research. As such, there may exist mediating variables between the business owners' perception of the COVID-19 pandemic and the SMEs' bank loan financing decisions that have not been found. Future studies might design more comprehensive hypothesised models that capture the mediating variables of the constructs used in this study, which would allow a deeper understanding of the SMEs' bank loan financing decisions.

**CONCLUSION**

In this paper, we employ a unique data set of Vietnamese SMEs from our survey conducted from March to April 2020 in order to shed light on the relationship between the impact of COVID-19 pandemic and Vietnamese SMEs' bank loan financing decisions. Overall, we find that the variables of risk perception of COVID-19 are significantly correlated to SMEs' bank loan financing decisions. Since perceived efficacy variable is positively correlated with post-COVID-19 loan decision variable, firm owners who believe in the ability to take effective protective actions against the COVID-19 of Vietnamese government would have the intention to apply for bank loan in the future. However, the negative relationship between risk to business variable and post-COVID-19 loan decision variable indicates that SMEs will less likely to apply for bank loans because they believe that COVID-19 leads to negative impacts on their businesses. These findings

imply that risk perception of COVID-19 is a significant factor that helps predict SMEs' bank loan financing decisions. Several implications and contributions to the financial management field has been discussed.

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## NOTE

[1]Decree No. 39/2018/ND-CP

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